Early Miocene accretion of Panamá to northern South America. Sedimentologic and geochronologic evidence from an intramontane siliciclastic succession in the Northwestern Andes.

LARA MARIO[1], SILVA-TAMAYO, J.C.[2], SALZAR, A.M.[3]

[1]University of Houston, Corporacion Geologica ARES, marioelarao@gmail.com
[2] University of Houston, jsilvata@central.uh.edu
[3]University of Houston, Corporacion Geologica ARES, asalazar@cgares.org

The Late Oligocene-Middle Miocene Amagá Formation is an intramontane continental siliciclastic succession deposited along the northwestern-most Andes. Despite that the Amagá Formation deposited during a period of important changes in the Andean tectonics and therefore, may bear important information on the evolution of intramontane siliciclastic successions along active Andean type convergent margins, little is known about its stratigraphy and its sediment source areas.

Here we document detailed sedimentological and sequence stratigraphic information, as well as, petrographic/heavy minerals data, and detrital zircon U-Pb ages for the Amagá Formation along the Santa Fe de Antioquia – San Jerónimo Sub-basin, from which we investigate the controls of active Andean-type tectonics on the evolution of intramontane siliciclastic successions.

Changes on sedimentary environment, from meandering (Lower Member) to braided rivers (Upper Member), parallel changes in the sandstone provenance of the Amagá Formation. While sandstones from the Late Oligocene Lower Member suggest sources exclusively associated to the continental South American Plate, sandstones from the Early - Middle Miocene Upper Member suggest sources associated to both, the continental South American Plate and the allochthonous Panamá-Chocó Block. In particular, the Upper Member records the arrival of zircons younger than 50 Ma (18.7, 20.9, 25.3, 31.9, 40.7, 45.1 Ma), which are not present in the South American Continental Plate. The evolution of the sedimentary/stratigraphic patterns and the changes in sediment provenance displayed by the Amagá Formation suggest that the evolution of this intramontane siliciclastic succession was controlled by major changes in Andean tectonics; more precisely by the Early Miocene accretion of the Panamá-Chocó Block to northern South America